CLAIMS

What is claimed is:

1. A method of fabricating a MEMS device, the method comprising:

depositing a metal layer over a substrate;

patterning the metal layer to form an electrode of the MEMS device, the electrode serving as an etch stop in a subsequent etching step of a sacrificial layer; and

changing a composition of the electrode by thermally processing the electrode in an environment comprising nitrogen.

2. The method of claim 1 wherein the environment includes ammonia.

3. The method of claim 1, wherein the electrode comprises a bottom electrode of a light modulator.

4. The method of claim 1, wherein the metal layer comprises titanium and the composition of the electrode is changed to comprise titanium-nitride.

5. The method of claim 1, wherein the composition of the electrode is changed to that of a material selected from a group comprising TiWN and WN.

6. The method of claim 1, wherein changing the composition of the electrode comprises performing a rapid thermal process on the metallic electrode to form a conductive metallized ceramic material.

7. The method of claim 1, wherein depositing the metal layer comprises depositing the metal layer by physical vapor deposition (PVD).

8. The method of claim 1 further comprising:

prior to depositing the metal layer, depositing an isolation layer over the substrate.

9. A method of forming a metallic electrode, the method comprising:

depositing a metal layer over a surface; and

thermally processing the metal layer with a nitrogen source to change the composition of the metal layer to a conductive metallized ceramic.

10. The method of claim 9 further comprising:

etching the metal layer to form a metallic electrode prior to thermally processing the metal layer.

11. The method of claim 9 wherein thermally processing the metal layer changes the composition of the metal layer to that of a material selected from a group comprising TiWN and WN.

12. The method of claim 9 wherein the metal layer comprises titanium and thermally processing the metal layer changes the composition of the metal layer to titanium nitride.

13. The method of claim 9 wherein the metal layer is deposited by physical vapor deposition and thermally processed by rapid thermal processing.

14. The method of claim 9 further comprising:

depositing a sacrificial layer over the metal layer; and

etching the sacrificial layer using the metal layer as an etch stop protecting an underlying layer of material.

15. The method of claim 14 wherein the sacrificial layer comprises silicon.

16. The method of claim 14 wherein the sacrificial layer is etched using a noble gas fluoride.

17. A method of forming a metallic electrode, the method comprising:

sputtering a layer of titanium over a surface;

etching the layer of titanium to form a metallic electrode; and

thermally processing the metallic electrode in an environment including ammonia to change the composition of the metallic electrode to comprise titanium nitride.

18. The method of claim 17 further comprising:

depositing a sacrificial layer comprising silicon over the metallic electrode; and

etching the sacrificial layer using a gaseous etchant to form an air gap using the metallic electrode as an etch stop.

19. The method of claim 18 wherein the gaseous etchant comprises a noble gas fluoride.

20. The method of claim 18 wherein the air gap separates a resilient movable structure and the metallic electrode.